

CLAIMS

1. A process for producing a carotenoid emulsion which comprises heating a suspension of the carotenoid in toluene to a temperature in the range of 50 to 120°C, by passing the suspension through a heated conduit for a residence time in the range of 10 to 600 seconds, to dissolve the carotenoid, immediately mixing the resulting solution with water of a temperature in the range of 5 to 60°C in the presence of an emulsifier to emulsify the solution and then distilling off the toluene under reduced pressure.
2. The process according to claim 1, wherein the particle size of the carotenoid is 50 μm or less.
3. The process according to claim 1 or 2, wherein the use quantity of the carotenoid to the toluene is in the range of 0.1 to 10 % by mass.
4. The process according to any of claims 1 to 3, wherein the suspension of the carotenoid contains an antioxidant.
5. The process according to any of claims 1 to 4, wherein the course of the solution from the outlet of the heated conduit to immediately before the mixing with the water is also formed with a conduit.
6. The process according to any of claims 1 to 5, wherein the inside diameter of the conduit is in the range of 0.1 to 500 mm.
7. The process according to any of claims 1 to 6, wherein the thickness of the conduit is in the range of 0.1 to 10 times the inside diameter of the conduit.
8. The process according to any of claims 1 to 7, wherein the length of the heated conduit is in the range of 0.1 to 20 m.
9. The process according to any of claims 5 to 8, wherein the length of the conduit from the outlet of the heated conduit to immediately before the mixing with the water is in the range of 0.01 to 20 m.

10. The process according to any of claims 1 to 9, wherein the emulsifier is at least one selected from a fatty acid ester of ascorbic acid, a sucrose fatty acid ester, a sorbitan fatty acid ester and a polyglycerol fatty acid ester.

5 11. The process according to any of claims 1 to 10, wherein the use amount of the emulsifier is in the range of 0.1 to 5 % by mass of the water used.

12. The process according to any of claims 1 to 11, wherein the use amount of the water is in the range of 1 to 2,000 times the mass of the
10 carotenoid.

13. The process according to any of claims 1 to 12, wherein at least one selected from gelatin, sugar, gum arabic and starch is added into the water.

14. Carotenoid powder obtained by spray drying the carotenoid emulsion obtained by the process according to any of claims 1 to 13, or by
15 stirring the carotenoid emulsion in a nonpolar solvent to make the emulsion particles, and filtering and drying the particles.